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| Published <i>With international search report.</i> | | | |
| (54) Title: REPELLANT MATERIAL | | | |
| (57) Abstract <p>There is provided a repellant material composition comprising an insect repellant and a gel forming agent, wherein said insect repellant is pyrethrum. The composition is suitable for application to the skin and has a particularly long-lasting effect. The composition according to the invention is further capable of drying to form a microfilm layer on the skin, the layer being at least partially water-resistant, and a residue with the ability to repel insects remains on the skin after washing.</p> | | | |
| <div style="text-align: right;">[N]</div> | | | |

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1 "Repellant Material"

2

3 The present invention relates to a repellant material,
4 and in particular to a material having insect repelling
5 properties.

6

7 Known compositions which repel insects and can be
8 applied to the skin normally contain diethyltoluamide
9 (deet), dimethylphthalate, di-N-propylisocinchomate,
10 N-octyl bicycloheptene dicarboxamide or mixtures of
11 these compounds as the active ingredient having the
12 desired insect repelling properties. However, although
13 such compounds are effective in repelling insects they
14 have the disadvantage that they can cause irritation to
15 the skin and skin rashes. In extreme cases more severe
16 illness, possibly leading to death, can result.

17

18 Other insect repellents containing vegetable extracts
19 are safer to use but are less effective in repelling
20 insects and have only a low protection time. Moreover,
21 this type of insect repellant tends to be oily or
22 greasy.

23

24 In addition many of the conventional insect repelling

1 compositions are completely washed away upon exposure
2 to water or aqueous solutions.

3
4 According to the present invention there is provided a
5 repellent material composition comprising an insect
6 repellent and a gel forming agent. The composition is
7 suitable for application to the skin and has a
8 particularly long-lasting effect. The composition
9 according to the invention is capable of drying to form
10 a microfilm layer on the skin, the layer being at least
11 partially water-resistant and a residue with the
12 ability to repel insects remains on the skin after
13 washing. In addition, the microfilm layer forms a
14 physical barrier, preventing insect bites.

15
16 By mixing certain compounds, properties can be produced
17 which affect certain organisms and these properties are
18 not known to be associated with the individual
19 components of the mixture.

20
21 Preferably the repellent material comprises a pyrethrin
22 (for example pyrethrum) which is effective in repelling
23 insects. In a preferred embodiment, a piperonyl
24 alkoxide is included in the composition and acts
25 synergistically with the pyrethrin to promote the
26 insect-repelling properties of the composition.
27 Preferably the alkoxide has up to 10 carbon atoms, for
28 example 2 to 8 carbon atoms.

29
30 The gel-forming agent may be any suitable agent capable
31 of forming a gel. Generally the gel formed should not
32 liquify when heated to a temperature lower than 40°C.
33 suitable gel-forming agents include polymeric compounds
34 such as cellulose, cellulose derivatives, alginate and
35 the like. The preferred gel-forming agent is alginate.

1 Optionally the composition may further include collagen
2 or glycerine as a component. Addition of 0.01 to 10%
3 by weight of collagen or glycerine promotes adherence
4 of the dried layer of gel composition on the skin.
5 Generally, 0.5 to 2% by weight of glycerine will
6 produce satisfactory results.

7

8 Additionally further ingredients may be included. For
9 example, binders (eg. resins), viscosifiers, buffers,
10 osmotic regulators, surfactants, emulsifiers,
11 dispersants, dyes, pigments or colorants, perfumes or
12 essential oils, and the like. Mention may be made of
13 sesame oil, orange oil, rosemary oil, black pepper oil
14 and the like which may be included in the composition
15 to produce a pleasant smelling gel. Certain essential
16 oils (such as, for example, rosemary oil and black
17 pepper oil) are also useful to prevent stinging, which
18 is especially useful where the skin has already been
19 bitten by insects.

20

21 In one embodiment the composition may further include
22 sunscreening components. Suitable sunscreening
23 components are well-known to those skilled in the art,
24 but particular reference is made to titanium dioxide
25 for inclusion in the present composition to impart
26 sunscreening properties thereto. The present
27 composition may be made to impart a recognised degree
28 of protection from sunburn as required, for example the
29 composition may be made to Factor 10 or 20.

30

31 The composition according to the present invention may
32 be applied to the skin and forms a non-toxic layer of
33 active substance which has the ability to repel
34 insects, such as flying insects for example mosquitos,
35 gnats and midges. The layer of composition on the skin

1 is dry, non-greasy and has a protection time of
2 approximately 6 hours.

3
4 In addition to being repellent to insects the
5 composition is insecticidal on contact.

6
7 In another aspect, the present invention also provides
8 a method of producing the composition described above,
9 said method comprising admixing an insect repellent and
10 a gel-forming agent.

11
12 In a further aspect, the present invention provides a
13 method of repelling insects from a surface, said method
14 comprising applying a composition as described above to
15 said surface.

*just
surface*

16
17 In a yet further aspect, the present invention provides
18 the use of a composition, as described above to repel
19 insects.

20
21 The following Examples further illustrate the invention
22 in a non-limiting manner.

23

1 EXAMPLE 12 Gel Composition

3

4

% by weight

| | | |
|---|------------|-------|
| 5 | Alginate | 6.5 |
| 6 | Pyrethrum | 0.47 |
| 7 | Sesame Oil | 3.74 |
| 8 | Orange Oil | 0.47 |
| 9 | Water | 88.82 |

100.00

10 The ingredients are blended together into a non-greasy
11 gel which can be applied to the skin to repel insects.

12

13 EXAMPLE 214 Gel Composition

15

% by weight

| | | |
|----|--------------------|-------|
| 16 | Alginate | 2.0 |
| 17 | Pyrethrum | 0.15 |
| 18 | Glycerine | 1.00 |
| 19 | Piperonyl butoxide | 0.80 |
| 20 | Rosemary Oil | 0.10 |
| 21 | Black Pepper Oil | 0.10 |
| 22 | Water | 95.85 |

100.00

23

24 The ingredients are blended together into a non-greasy
25 gel which can be applied to the skin to repel insects.
26 titanium dioxide may be added to either composition to
27 provide the required degree of protection from the sun.

1 CLAIMS

2

3 1. A repellent material composition comprising an
4 insect repellent and a gel forming agent, wherein
5 said insect repellent is pyrethrin.

6

7 2. A composition as claimed in Claim 1, wherein said
8 gel-forming agent is alginate.

9

10 3. A composition as claimed in either of Claims 1 and
11 2 further comprising a piperonyl alkoxide.

12

13 4. A composition as claimed in Claim 3 wherein said
14 piperonyl alkoxide is piperonyl butoxide.

15

16 5. A composition as claimed in any of Claims 1 to 4
17 further comprising glycerine.

18

19 6. A composition as claimed in any of Claims 1 to 5
20 further comprising a suncreening component.

21

22 7. A composition as claimed in Claim 6 wherein
23 titanium dioxide is present as said suncreening
24 component.

25

26 8. A repellent material composition substantially as
27 hereinbefore described.

28

29 9. A method of producing a composition as claimed in
30 any of Claims 1 to 8, said method comprising
31 admixing pyrethrum and a gel-forming agent.

32

33 10. A method of producing a repellent material
34 composition as claimed in any of Claims 1 to 8
35 substantially as hereinbefore described.

- 1 11. A method of repelling insects from a surface, said
2 method comprising applying a composition as
3 claimed in any of Claims 1 to 8 to said surface.
4
- 5 12. The use of a composition as claimed in any one of
6 Claims 1 to 8 to repel insects.

INTERNATIONAL SEARCH REPORT

Intern. Appl. No.
PCT/GB 94/01961

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A01N53/00 A61K7/40 //(A01N53/00,25:24,25:04)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 A01N A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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